

Application Number: 10/556,650  
Amendment Dated: February 25, 2009  
Reply to Office Action Dated: September 25, 2008

### REMARKS

This amendment is responsive to the Office Action dated September 25, 2008 for which a three (3) month period of response was given. A Petition and fee for a two (2) month extension of time accompany this paper. No additional claim fees are believed to be due. However, should further extensions of time and/or additional claim fees be due, the Commissioner is hereby authorized to treat this paper as a Petition for any needed extension of time and to charge any fees due to Deposit Account No. 50-0959, Attorney Docket No. 089498.0445.

Claims 1 through 19 are pending in the present application upon entry of the above amended claims. Claims 1, 9 and 18 have been amended to more clearly state the nature of the present invention. Support for the amendments to claims 1, 9 and 18 exists in the specification as originally filed. Accordingly, entry and consideration of the amendments to the claims, and the remarks which follow, is believed due and is respectfully requested.

#### I. The 35 U.S.C. § 102(b) Rejections:

Claims 1 through 5, 7, 9, 11 through 13, 15, 18 and 19 have been rejected under 35 U.S.C. § 102(b) over Janata (United States Patent No. 4,514,263). Janata discloses an apparatus that contains a chemically sensitive field effect transistor (CHEMFET) having a semiconductor substrate and a pair of diffusion regions formed at the surface of the substrate. Additionally, Janata discloses that an electrical insulating layer is positioned adjacent the substrate and a fluid pervious bridge member is mounted to the insulating layer so as to form a gap between the bridge member and insulating layer. Finally, the apparatus of Janata also includes means for imposing an electrical charge on the bridge member, means for imposing an electrical potential between the diffusion regions, and means for detecting current flow between the diffusion regions.

Turning to the present invention, the present invention as recited in claims 1, 9 and 18 relates to a gas detector and/or tunnel junction device that comprises, among other features, a first electrically conductive material layer, an electrically nonconductive material layer disposed on the first electrically conductive material layer, and a second

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electrically conductive material layer disposed on the electrically nonconductive material layer, wherein the first electrically conductive material layer is formed from an electrically conductive material that is non-catalytic for the gas to be detected, and wherein the second electrically conductive material layer is formed from an electrically conductive material is selectively catalytic for the gas to be detected (emphasis added).

Given the disclosure contained therein, Janata fails to disclose, teach or suggest each and every claimed feature of the present invention. This is because Janata fails to disclose, teach or suggest a gas sensor and/or tunnel junction device that contains the claimed combination of a first electrically conductive material layer, an electrically nonconductive material layer, and a second electrically conductive material layer. As such, claims 1, 9 and 18 possess novelty over Janata. Accordingly, withdrawal of the novelty rejection of claims 1 through 5, 7, 9, 11 through 13, 15, 18 and 19 is believed due and is respectfully requested.

Claims 1, 3, 7 through 9, 12 and 16 through 19 have been rejected under 35 U.S.C. § 102(b) over Samman et al. (United States Patent No. 6,298,710). Samman et al. discloses a combustible gas sensor diode that includes a silicon carbide (SiC) semiconductor substrate, on top of which an aluminum nitride (AlN) layer and a catalytic metal "gate" electrode are deposited.

Turning to the present invention, the present invention as recited in claims 1, 9 and 18 relates to a gas detector and/or tunnel junction device that comprises, among other features, a first electrically conductive material layer, an electrically nonconductive material layer disposed on the first electrically conductive material layer, and a second electrically conductive material layer disposed on the electrically nonconductive material layer, wherein the first electrically conductive material layer is formed from an electrically conductive material that is non-catalytic for the gas to be detected, and wherein the second electrically conductive material layer is formed from an electrically conductive material is selectively catalytic for the gas to be detected (emphasis added).

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Given the disclosure contained therein, Samman et al. fails to disclose, teach or suggest each and every claimed feature of the present invention. This is because Samman et al. fails to disclose, teach or suggest a gas sensor and/or tunnel junction device that contains the claimed combination of a first electrically conductive material layer, an electrically nonconductive material layer, and a second electrically conductive material layer. As such, claims 1, 9 and 18 possess novelty over Samman et al. Accordingly, withdrawal of the novelty rejection of claims 1, 3, 7 through 9, 12 and 16 through 19 is believed due and is respectfully requested.

II. The 35 U.S.C. § 103(a) Rejections:

Claim 14 has been rejected under 35 U.S.C. § 103(a) over the combination of Janata (United States Patent No. 4,514,263) and Mifsud et al (United States Patent No. 6,290,838). The teachings and deficiencies of Janata are discussed in detail above.

Turning to Mifsud et al., Mifsud et al. discloses an apparatus and a method of characterizing liquids that employs liquid sensors of different types of technology, in order to generate characterization data from the whole of the output signals originating from these sensors when they are soaked in a sample of the liquid. Mifsud et al. clearly fails to cure the deficiencies of Janata.

This is because Mifsud et al. also fails to disclose, teach or suggest the tunnel junction device of claim 9 that comprises, among other features, a first electrically conductive material layer, an electrically nonconductive material layer disposed on the first electrically conductive material layer, and a second electrically conductive material layer disposed on the electrically nonconductive material layer, wherein the first electrically conductive material layer is formed from an electrically conductive material that is non-catalytic for a gas to be detected, and wherein the second electrically conductive material layer is formed from an electrically conductive material is selectively catalytic for a gas to be detected (emphasis added).

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Since Mifsud et al. clearly fails to cure the deficiencies of Janata by failing to disclose, teach or suggest the tunnel junction device of claim 9, the combination of Janata and Mifsud et al. cannot render obvious claim 14. As such, withdrawal of the obviousness rejection of claim 14 over the combination of Janata and Mifsud et al. is believed due and is respectfully requested.

Claims 6 and 10 have been rejected under 35 U.S.C. § 103(a) over the combination of Janata (United States Patent No. 4,514,263) and Maclay et al. (United States Patent No. 5,716,506). The teachings and deficiencies of Janata are discussed in detail above.

Turning to Maclay et al., Maclay et al. discloses amperometric electrochemical sensors for detection of an analyte gas in air. The sensors of Maclay et al. can be used in a gas detector to detect the analyte gas and to compensate for the relative humidity and temperature of the air. Given the disclosure contained therein, Maclay et al. clearly fails to cure the deficiencies of Janata.

This is because Maclay et al. also fails to disclose, teach or suggest the gas detector and/or tunnel junction device of claims 1 and 9 that comprises, among other features, a first electrically conductive material layer, an electrically nonconductive material layer disposed on the first electrically conductive material layer, and a second electrically conductive material layer disposed on the electrically nonconductive material layer, wherein the first electrically conductive material layer is formed from an electrically conductive material that is non-catalytic for a gas to be detected, and wherein the second electrically conductive material layer is formed from an electrically conductive material is selectively catalytic for a gas to be detected (emphasis added).

Since Maclay et al. clearly fails to disclose, teach or suggest the gas detector and/or tunnel junction device of claims 1 and 9, the combination of Janata and Maclay et al. cannot render obvious claims 6 and 10. As such, withdrawal of the obviousness rejection of claims 6 and 10 over the combination of Janata and Maclay et al. is believed due and is respectfully requested.

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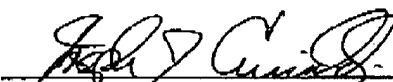
III. Conclusion

Accordingly, reconsideration and withdrawal of the 35 U.S.C. § 102(b) and 35 U.S.C. § 103(a) rejections of claims 1 through 19 is believed due and is respectfully requested.

For at least the foregoing reasons, the present application is believed to be in condition for allowance, and a Notice of Allowance is respectfully requested.

Should the Examiner wish to discuss any of the foregoing in more detail, the undersigned attorney would welcome a telephone call.

Respectfully submitted,

  
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Joseph J. Crimaldi, Reg. No. 41,690  
Roetzel & Andress  
222 South Main St.  
Akron, Ohio 44308  
(330) 376-2700

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